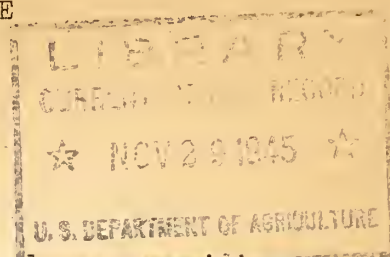


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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Administration
Bureau of Animal Industry
Animal Husbandry Division



FEEDING SOFT CORN

Soft corn can be utilized on the farm without excessive ~~losses providing~~ sufficient livestock are available to consume the crop. It has been established that pound for pound the dry matter in soft corn, except that which is very immature, is approximately equal to that of well-matured corn. Frosted, immature ear corn sometimes yields as much dry matter per acre as mature corn of average years depending on the season. Poor growing seasons followed by early frosts will seriously reduce the yield, however. Published figures indicate that the amount of dry matter in the entire ear in the milk stage may be only half that of the ripe ear while the amount in the glaze stage is three-quarters.

When molding is prevented soft corn can be fed to nearly if not all classes of livestock. In general order of adaptability cattle probably rank first primarily because of the different forms in which it can be fed; swine rank second in adaptability. Swine have the advantage also of tolerating a certain amount of mold and they have the ability to select out the more desirable grain and discard the spoiled. Sheep, under careful management, can utilize soft corn that is relatively free of mold. Considerable care must be used in feeding soft corn to both poultry and horses.

VARIATIONS IN SOFTNESS

In the Corn Belt States even well-matured corn will contain 15 to 18 percent of moisture in the kernels at the time of cribbing. As much as 20 percent is not unusual and with ordinary precautions can be cribbed. Corn with over 25 percent moisture can be considered as slightly soft, over 35 as definitely soft and over 45 as very soft. Usually, the grain contains considerably less moisture than the cob. The usual range in moisture content of soft corn encountered in the late fall and winter probably extends to a maximum of 40 percent. Thus there is a considerable range to be considered in making plans for the form in which to store the corn crop and for the feeding operations. The softer portion of the crop is preferably handled by ensiling to be fed to cattle and sheep in the ordinary way. Besides ensiling the whole plant, the ears either shucked or unshucked can be chopped and run into the silo. Water may have to be sprayed over the cut material to raise the moisture content to 50 to 60 percent. Ear corn silage made in this way is a more concentrated feed than whole corn and can be fed to swine as well as to cattle and sheep to form the principal grain portion of the ration.

FEEDING CATTLE

Cattle provide the best means for utilizing soft corn. In the first place large quantities can be handled as ordinary corn silage and even more if it is made into ear-corn silage as mentioned above. This feed can be fed as replacement for part or all of the grain portion of the ration. Still another way is to husk a few days' supply at a time depending on the weather during the late fall and winter and to feed directly to the cattle without storage. In some sections shocked corn is used either whole or shredded. Finally cattle may be pastured in the fields.

Feeding experiments by the Illinois Agricultural Experiment Station indicate that for fattening or wintering calves, yearlings and 2-year olds the per acre returns rank as follows for different ways of utilizing soft corn: (1) ear-corn silage, (2) shocked corn, (3) corn husked as needed, and (4) pasturing in the corn field. Hogs following the cattle in the feed lots usually do not obtain as much feed as when cattle are being fattened on mature, dry corn. While efforts should be made to avoid molding in the handling of soft corn, moldy corn can be fed to most classes of cattle, particularly the older animals. The rate of consumption may be somewhat lower and more hay may need to be fed to lessen the tendency to go off feed as compared to the feeding of undamaged corn, mature or immature. From the standpoint of classes of cattle best suited to utilize soft corn, some feeders believe that it is better for the herd ration than for the fattening lot. The main point seems to be that the total dry matter intake may not be as high as when animals are fed on mature shelled corn or even corn-and-cob meal. Where heavy feeding is not practiced and a grade of good or low choice slaughter animal is desired this should not be a matter of serious concern. Typical rations have consisted of 3 to 4 pounds of ear corn silage per 100 pounds of live weight together with 1.5 to 2 pounds of linseed meal or other protein meal and 2 to 3 pounds of alfalfa hay per head. Rations for other classes than feeder cattle, which are being wintered, can be adjusted to suit the purpose. Some ordinary corn silage can be used along with the ear-corn silage or can entirely replace the latter. Relatively little has been reported about feeding soft corn to dairy cows. Obviously, silages can be used to good advantage for this purpose. Ear-corn silage should be useful to replace a part of the grain ration.

SWINE

Pigs over 100 pounds along with the breeding herd can be fed soft corn with reasonably good results. Several of the experiment stations have shown that ear-corn silage can be fed to fattening pigs the same as this feed is fed to cattle. Husked corn is to be preferred to snapped corn, however, for swine. Best results are obtained with corn which is only moderately soft since the dry-matter intake on the extremely soft corn is too low to produce rapid gains. From the standpoint of dry-matter consumption per unit of gain, the soft corn is used rather efficiently but a longer time will be required for the pigs to reach the desired market weight. Although the protein content in the dry matter of soft corn is generally higher than in mature corn, a protein supplement is nevertheless required. Depending on the amount of tankage or fishmeal consumed, mineral supplements to supply calcium especially are also needed. When a protein supplement is fed in a self-feeder, consumption is likely to be greatest on the softest corn. A large acreage of corn is usually hogged down in soft-corn years. This method saves considerable labor and also provides opportunity for the corn to dry out in the field. In order to reduce waste, it is a good practice to hog down successive strips of the field by the use of temporary fences. The protein and mineral mixtures can be fed in self-feeders placed in the field or hand fed daily at levels to provide proper intake.

OTHER LIVESTOCK

As already indicated soft corn, free of mold, can be fed to mature sheep and to fattening lambs. The change to soft corn should be made gradually. Silage is perhaps the best form in which to use soft corn for sheep. However, if not fed as silage, soft corn may be chopped and fed with a good grade of legume hay and a protein supplement.

While much soft corn undoubtedly is fed on farms to poultry in the Middle West there is little experimental information on the subject. Workers at the Indiana Station have reported that moldy corn was well tolerated by growing chicks but increasing proportions above 20 percent in the diet tended to decrease the rates of gain. Reports from poultrymen in some Eastern States have indicated high mortality among poultry fed on soft corn so it would seem advisable to exercise considerable caution especially in using large amounts.

As with poultry, there is little experimental work on the feeding of soft corn to horses. The presence of mold is apparently the main concern.

FEEDING ADVICE

Because conditions which affect the keeping qualities of soft corn and of means of feeding to livestock vary so much in different areas it is not possible to give definite practices universally suited to all conditions. Most of the State experiment stations located in the States which have experienced the greatest trouble with soft corn have conducted experiments and have collected information on which to base recommendations for the proper handling and feeding of the crop.

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